

# PATENT SPECIFICATION



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## PROVISIONAL SPECIFICATION

### An improved Method and Means for Testing Weighing Apparatus *in situ*

We, W. & T. AVERY LIMITED, of Soho Foundry, Birmingham, a Company incorporated under the Laws of Great Britain, and ARTHUR BINNS, of the Company's address, a British Subject, do hereby declare the nature of this invention to be as follows:—

This invention has reference to an improved method and means for testing weighing apparatus *in situ*, and is more particularly applicable to the testing of weighing apparatus used for indicating the load upon the wheels or axles of a locomotive, or other vehicle.

Considerable difficulty is experienced in effecting a test of the accuracy of apparatus of this character *in situ* in that it is often difficult, if not impossible, to apply to the apparatus the necessary quantity of dead or standard test weights which may be necessary to effect a calibration of the weighing system, in that apparatus of this character is often located in a relatively confined situation to which admission is not readily accessible, as for instance, in a pit below a railway track. The object of the present invention is to overcome the aforesaid difficulty and to effect an accurate test *in situ* of apparatus of this character.

This invention consists of an improved method and means for testing weighing apparatus *in situ*, and is characterised by the association with the apparatus to be tested of another calibrated apparatus preferably of a corresponding capacity, the two apparatus being associated one with the other in a predetermined position at which force may be simultaneously applied to both apparatus corresponding to any effective load which the apparatus being tested is intended to carry, said force conveniently being applied by the pressure exerted by a jack or ram.

Describing now one means of carrying this invention into effect as applied to a traversable weighing apparatus intended to be situated in a pit below the wheel of a locomotive, the weighing apparatus is mounted in a box-like structure on a trolley which is traversable upon a rail track in the base of the pit. At the point where the test is to be carried out there

is provided a plurality of bolts anchored at their lower ends in the foundation of the pit, the upper ends of the bolts having mounted thereon a girder framework in which is mounted a screw jack. When a test is to be effected there is interposed between the weighing platform of the apparatus to be tested and the pressure foot of the screw jack a self-contained calibrated weighing mechanism of a capacity at least equal to that of the apparatus which is to be tested. Pressure is now applied by means of the screw jack to the platform of the calibrated weighing apparatus which pressure is simultaneously applied through this apparatus to the platform of the weighing apparatus to be tested. Observation is then made of the two indicating mechanisms, i.e., the mechanism of the calibrated apparatus, and the mechanism of the apparatus undergoing a test, and if both indications agree then the apparatus under test is correct, but if an error is apparent then correction is made until the test shows a corresponding indication on both apparatus.

As an alternative method and means of effecting a similar test the calibrated weighing apparatus may be pivotally connected to a girder disposed across the pit and secured in the side walls thereof, the weighing apparatus to be tested being disposed below the girder on the rail track in the base of the pit and has mounted on its weighing platform the lower ends or feet of the plurality of bolts which support the girder framework in which the jack is mounted. The upper shackle or suspension link of the calibrated weighing apparatus is pivotally connected to the rotatable screw of the jack and by applying a lifting force to this upper shackle or link of the calibrated weighing apparatus against its anchorage to the cross girder a resultant downward force or pressure is applied through the girder framework to the plurality of bolts and thence to the weighing platform of the apparatus undergoing test, and in a similar way to that described in the first illustration an observation is made of the indications of the calibrated

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upper shackle or suspension link 10a of the calibrated weighing apparatus 10 is pivotally connected to the lower end of the rotatable screw of the jack 8 and by applying a lifting force to this shackle or link 10a which constitutes part of the calibrated weighing apparatus 10 against its anchorage to the cross girder 11, a resultant downward force or pressure is applied through the girder framework 7 to the plurality of bolts 12 and thence to the weighing platform 3a of the apparatus undergoing test, and in a similar way to that described with reference to Fig. 1 an observation is made of the indications obtained by the calibrated apparatus 10, which in this case is a known form of portable steelyard and poise-weight weighing mechanism usually termed a suspended crane weigher, and the indications 3b of the weighing apparatus 8.

It will be obvious that for the screw jack 8 a hydraulic jack may be substituted, or the required pressure may be applied by pneumatic force.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we

claim is:—

1. A method and means for testing weighing apparatus *in situ* and comprising a fixed means permanently located in a part of the site and to which the apparatus to be tested can be traversed, a force applying means directly or indirectly anchored to said fixed means and adapted to apply a load simultaneously to an accurately calibrated instrument preferably of the same capacity and to the apparatus to be tested, said force applying means preferably being in the form of a screw or a hydraulic ram.

2. A means for testing weighing apparatus *in situ* arranged and adapted for use as herein described and for the purpose set forth with particular reference to Figure 1 of the drawings.

3. A means for testing weighing apparatus *in situ* arranged and adapted for use as herein described and for the purpose set forth with particular reference to Figure 2 of the drawings.

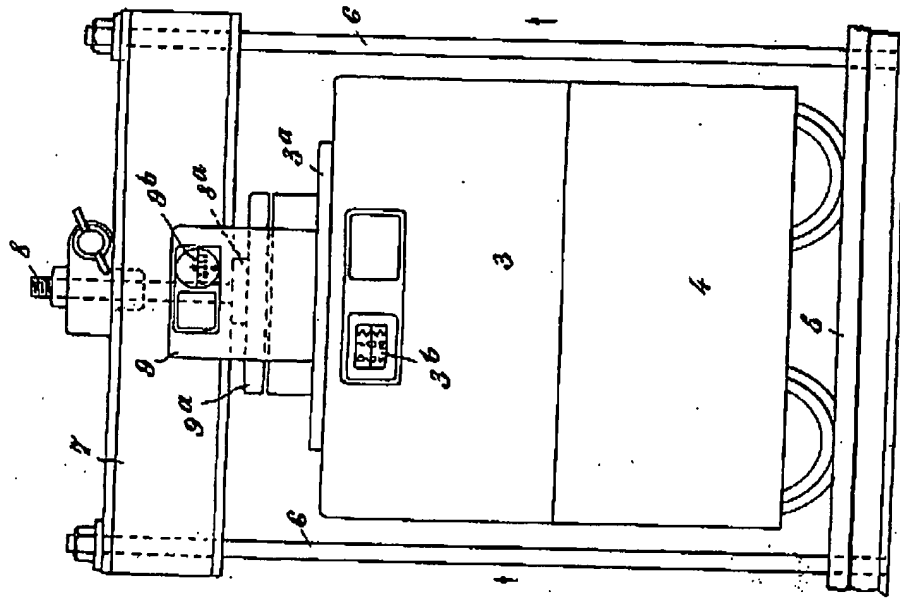
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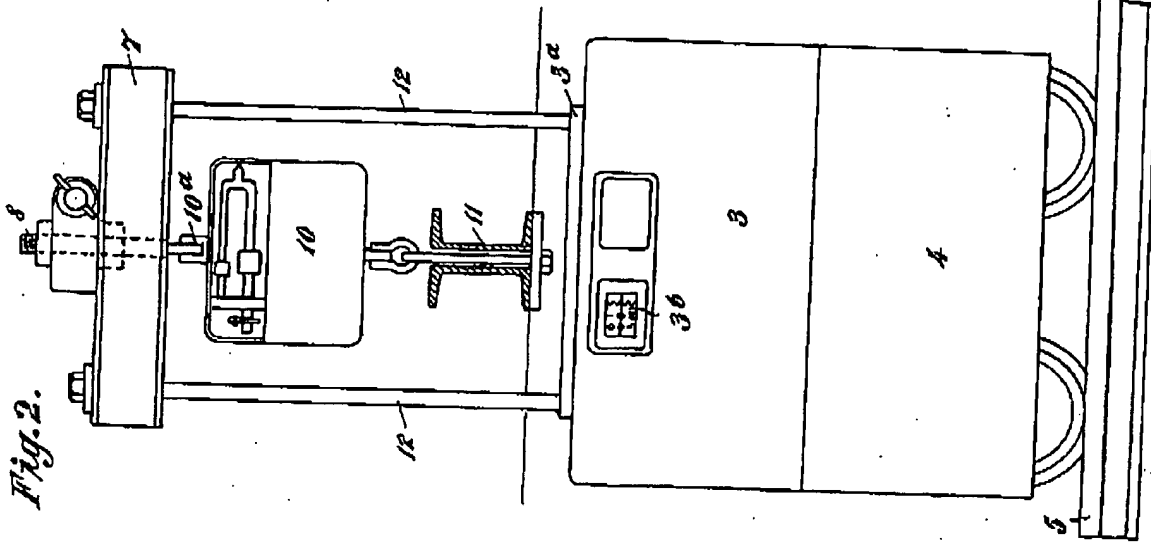
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Fig. 1.



[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 2.



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